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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/625,435 | 07/23/2003 | Jon Bengston | 2156-606A | 7874 |

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EXAMINER

KLEMANSKI, HELENE G

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1755

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,435

Applicant(s)

BENGSTON, JON

Examiner

Helene Klemanski

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/23/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 3, line 20 of the specification, the term "neutralized?" should be replaced with the term "neutralized".

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: no literal antecedent basis is seen in the specification for the phrase "wherein said stabilizer is present in said plating bath composition at a concentration of about 5 to about 20 grams/liter in claim 4.

The examiner suggests the incorporation of this phrase into the specification or the claims amended accordingly.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 and 6-11 are rejected under 35 U.S.C. 102(b) as being anticipated by DeLuca et al.

DeLuca et al. teach an electroless copper plating solution comprising copper sulfate (i.e. source of copper), ethylenediaminetetraacetate (i.e. complexing agent), formaldehyde (i.e. reducing agent), sodium hydroxide (pH adjustor), sodium cyanide, sodium sulfate, sodium formate (stabilizer) and a surfactant. DeLuca et al. further teaches that the solution has a pH of 11.7 and the bath is used to plate a substrate at a temperature of 75°C. See col. 9, lines 32-50 and example 1, col. 13, lines 25-40. The electroless copper plating solution as taught by DeLuca et al. appears to anticipate the present claims.

5. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuchi et al.

Kikuchi et al. teach an electroless copper plating solution comprising a source of copper ions such as copper sulfate or copper chloride, a copper(II) complexing agent such as EDTA, sodium salt of EDTA, nitrilotriacetic acid (NTA) and alkali metal salts of NTA, a reducing agent such as formaldehyde, a pH adjustor such as sodium hydroxide and potassium hydroxide, a polyoxyethylene series surfactant and optionally an inorganic compound and/or a cationic surfactant wherein the plating solution has a pH of 11-13.5 and is plated at a temperature of 70°C. Kikuchi et al. further teach that the addition of sodium formate in an amount of 6.8-34 g/l stabilizes the composition since it increases the cloud point of the plating solution (see Table 9 and col. 15, lines 13-15). See col. 1, lines 10-47, col. 1, line 60 – col. 2, line 25, col. 5, line 1, example 7, Table 9,

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col. 15, lines 13-15 and claim 1. The electroless copper plating solution as taught by Kikuchi et al. appears to anticipate the present claims.

6. Claims 1-4 and 6-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Zahka et al.

Zahka et al. teach an electroless copper plating solution comprising water, a source of copper ions such as copper sulfate or copper chloride, a reducing agent such as formaldehyde, a base such as alkali metal hydroxides, a complexing agent such as tetrasodium EDTA, 20.33 g/l sodium formate and various surfactants. Zahka et al. further teaches that the substrate to be plated is immersed in the plating solution at a temperature from 15-70°C and the plating solution and substrate can be agitated to dislodge bubbles of hydrogen gas evolved from the electroless plating reaction. See paras. 0043-0044, para. 0062 and para. 0064. The electroless copper plating solution as taught by Zahka et al. appears to anticipate the present claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 6, 7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan et al.

Yuan et al. teach an electroless copper plating solution comprising copper ion source such as copper sulfate or copper chloride, a reducing agent such as formaldehyde, a complexing agent such as triethanolamine, a pH adjusting agent such as sodium hydroxide and 1-5 g/l of a stabilizer such as formic acid. See col. 4, lines 23-63, col. 5, lines 40-45, col. 10, lines 28-42, examples 1-3, col. 25, lines 11-20. Yuan et al. fails to specifically exemplify the use of formic acid as the stabilizer as claimed by applicants.

Therefore, it would have been obvious to one having ordinary skill in the art to use the specific formic acid as the stabilizer as claimed by applicants as Yuan et al. also discloses the use of formic acid as the stabilizer but fails to show an example incorporating it.

The examiner notes that Yuan et al. does not specifically disclose the stabilizer that is added to the electroless copper plating solution but rather discloses stabilizers such as formic acid that are added to the pretreating solution that is also disclosed. It is the examiners position that Yuan et al. does suggest the stabilizers added to the pretreating solution are the same as those added to the electroless copper plating solution since Yuan et al. discloses that the electroless copper plating solution and the pretreating solution are very similar in composition. See col. 25, lines 11-24.

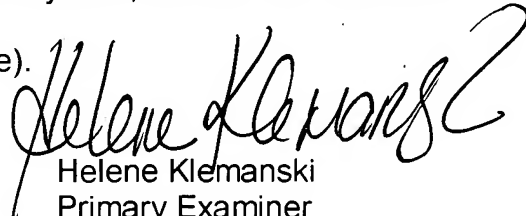
Conclusion

The remaining references listed on forms 892 and 1449 have been reviewed by the examiner and are considered to be cumulative to or less material than the prior art references relied upon in the above rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Klemanski whose telephone number is (571) 272-1370. The examiner can normally be reached on Monday-Friday 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Helene Klemanski
Primary Examiner
Art Unit 1755


HK
March 7, 2005